Form No. 3475-795 Rev A

Groundsmaster® 5900 Rotary Mower

Model No. 31698—Serial No. 418500000 and Up

Model No. 31699—Serial No. 418500000 and Up

Software Guide

Read this information carefully to learn how to operate the InfoCenter control on your product. You are responsible for operating the product properly and safely.

Visit www.Toro.com for product safety and operation training materials, accessory information, help finding a dealer, or to register your product.

Introduction

The Software Guide for the Groundsmaster 5900 or 5910 rotary mower provides information for using the system information and control the system functions.

Contents

Introduction 1
Operation 1
Overview of the InfoCenter Display 1
Using the Menus 3
Protected Menus 5
Understanding the Diagnostic Light 6
Audible Alarm from the InfoCenter 7
InfoCenter Advisories 8

Operation

Overview of the InfoCenter Display

The display shows information about your machine such as the operating status, various diagnostics, and other information about the machine. There are multiple screens on the display. You can switch between the screens at any time by pressing any of the display buttons and then selecting the appropriate directional arrow.

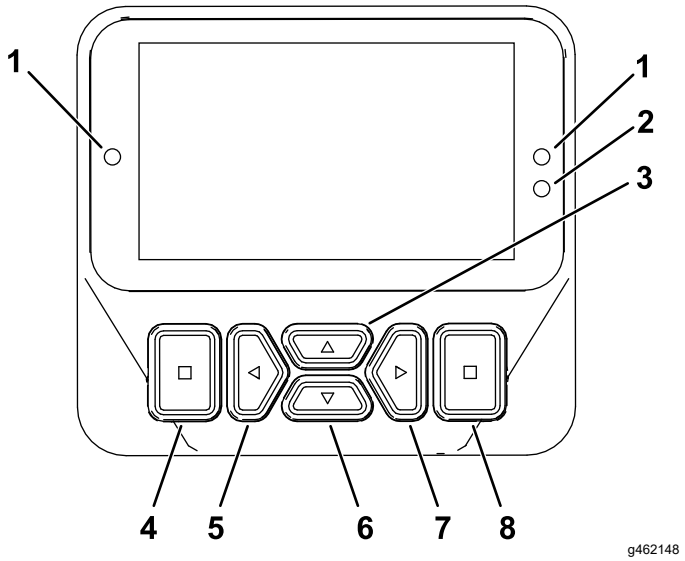

Figure 1

1. Indicator light
2. Display brightness sensor
3. Navigational button— up
4. Back/exit button
5. Navigational button— decrease/ left
6. Navigational button— down
7. Navigational button— increase/ right
8. Enter/select button

Note: The purpose of each button may change depending on what is required at the time. Each button is labeled with an icon displaying its current function.

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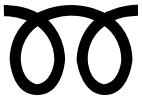
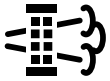
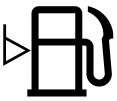
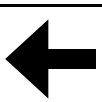
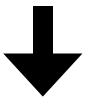
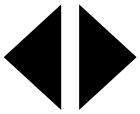
InfoCenter Icon Description

	Hour meter
	Page change
	Virtual pedal stop settings
	The glow plugs are active.
	The operator must sit in the seat.
	The parking brake is engaged.
	Neutral
	Fan reverse
	Engine coolant temperature (°C or °F)
	Traction or Traction Pedal
	The cruise control is engaged.
	Reset-standby regeneration request Parked or recovery regeneration request
	A parked or recovery regeneration is processing.
	High exhaust temperature
	NOx control diagnosis malfunction; drive the machine back to the shop and contact your authorized Toro distributor (software version U and later).

InfoCenter Icon Description (cont'd.)

	The power take-off is disabled.
	The PTO is on.
	Battery
	Fuel level
	Warning
	Active
	Inactive
	Previous
	Next
	The cutting units are raising.
	The cutting units are lowering.
	Previous screen
	Fast
	Slow
	Increase value
	Decrease value
	Menu

InfoCenter Icon Description (cont'd.)

	Scroll up/down
	Scroll left/right
	Locked
PIN	PIN Passcode

Using the Menus

To access the InfoCenter menu system, press the menu access button while at the main screen. This brings you to the main menu. Refer to the following tables for a synopsis of the options available from the menus:

Main Menu—Menu Item	Description
Service	The Service menu contains information on the machine such as hours of use, counters, and other similar numbers.
Diagnostics	The Diagnostics menu displays the state of each machine switch, sensor, and control output. You can use this to troubleshoot certain issues as it quickly tells you which machine controls are ON and which are OFF.
Settings	The Settings menu allows you to customize and modify configuration variables on the display.
Machine Settings	The Machine Settings menu allows you to adjust the auto idle, speed, Smart Power, backup alarm, and slope sensor thresholds.
About	The About menu lists the model number, serial number, and software version of your machine.

Service—Menu Item	Description
Hours	Lists the total number of hours that the machine, engine, and PTO have been on, as well as the number of hours the machine has been transported and service due.
DPF Regeneration	The diesel particulate filter regeneration option and DPF submenus
Fuel Rate	Lists the average fuel rate.
Traction Pedal	Lists the traction pedal calibration values and allows the traction pedal to be calibrated.
Fan Override	This screen allows the direction and speed of the radiator and hydraulic oil cooler cooling fans to be operated manually for testing purposes only.
Fan Demo	This screen allows the cooling fans to be put into a demonstration cycle for testing or demonstration purposes only.

Diagnostics—Menu Item	Description
Faults	The Faults menu contains a list of the recent machine faults. Refer to the *Service Manual* or contact your authorized Toro distributor for more information on the Faults menu and the information contained there.
Left Deck	Indicates the input and output for these components.
Center Deck	
Right Deck	
Traction Pedal	
Traction	
Range Hi/Low	
PTO	
Engine	
Cruise Control	
Air Filter	

Settings—Menu Item	Description
Enter PIN	Allows a person (superintendent/mechanic) authorized by your company with the PIN code to access protected menus.
Protected Settings 🔒	Allows a person authorized by your company with the PIN code to access protected settings.
Reset Defaults 🔒	Resets the settings to the default settings.
Backlight	Controls the brightness of the LCD display.
Language	Controls the language used on the InfoCenter.
Units	Controls the units used on the InfoCenter (English or Metric).

Note: The Machine Settings menu will only show when the PIN is entered.

Machine Settings—Menu Item	Description
Auto Idle	Controls the amount of time allowed before idling the engine when the machine is not in use
Mow Speed	Controls the maximum speed while in mow (low range).
Transport Speed	Controls the maximum speed while in transport (high range).
Smart Power	Turns Smart Power on and off.
Engine	Allows access to the following screens: • Smart Power • Auto Idle
Speed Limits	Use the speed limits settings to limit the maximum ground speed for the machine in the desired direction and speed range. Allows access to the following speed limit screens: • Mow Forward • Mow Reverse • Transport Forward • Transport Reverse Use the speed limits settings to limit the maximum ground speed for the machine in the desired direction and speed range. The speed limits settings are accessed from the settings screen and provide access to the following screens: • Mow Forward • Transport Forward • Mow Reverse • Transport Reverse
Backup Alarm	Indicates there is a backup alarm installed.

About—Menu Item	Description
GM5900	Lists the model number and serial number of the machine.
Info Center	Lists the software revision of the InfoCenter.
TEC5002–1	Lists the software revision of the primary controller.
TEC5002–1	Lists the software revision of the secondary controller.
Engine	Lists the engine information.

🔒Protected under Protected Menus—accessible only by entering PIN

Protected Menus

There are operating configuration settings that are adjustable within the SETTINGS of the InfoCenter. To lock these settings, use the PROTECTED MENU.

Note: At the time of delivery, the initial password code is programmed by your distributor.

Accessing Protected Menus

Note: The factory default PIN code for you machine is either 0000 or 5900.

If you changed the PIN code and forgot the code, contact your authorized Toro distributor for assistance.

1. From the MAIN MENU, scroll down to the SETTINGS menu and press the select button (Figure 2).

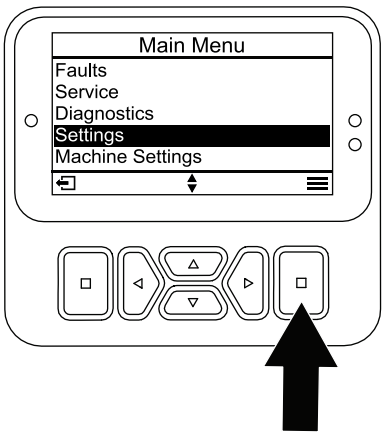


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Figure 2

2. In the SETTINGSmenu, scroll to the ENTEER PIN and press the select button (Figure 3A).

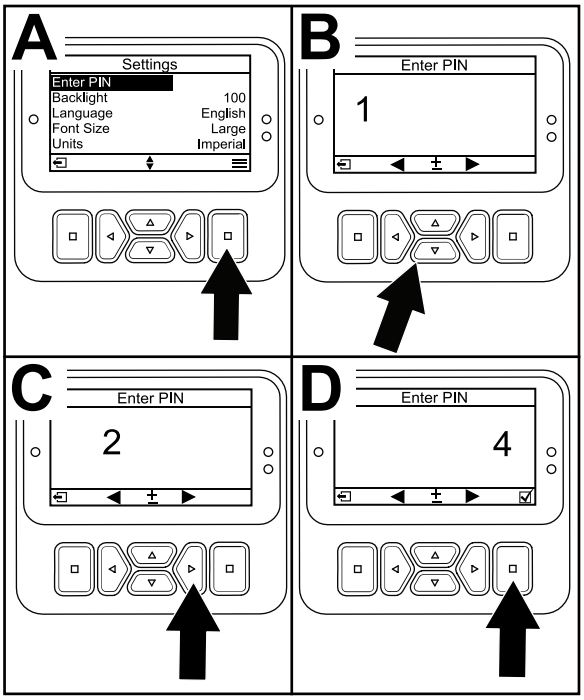

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Figure 3

3. To enter the PIN code, press the up/down navigation buttons until the correct first digit appears, then press the right navigation button to move on to the next digit (Figure 3B and Figure 3C). Repeat this step until the last digit is entered.
4. Press the select button.

   Note: If the display accepts the PIN code and the protected menu is unlocked, the word “PIN” displays in the upper right corner of the screen.
5. To lock the protected menu, rotate the key switch to the OFF position and then to the ON position.

Viewing and Changing the Protected Menu Settings

1. In SETTINGS, scroll down to PROTECT SETTINGS.
2. To view and change the settings without entering a PIN code, use the select button to change the PROTECT SETTINGS to ☐ (Off).
3. To view and change the settings with a PIN code, use the select button to change the PROTECT SETTINGS to ☑ (On), set the PIN code, and turn the key in the ignition switch to the OFF position and then to the ON position.

Setting the Service Due Timer

The service due timer resets the service due hours after a scheduled maintenance procedure is performed.

1. In SETTINGS , scroll to ENTER PIN and press the select button.
2. Enter PIN; refer to Accessing Protected Menus.
3. In SERVICE , navigate to HOURS and press the select button.
4. Scroll down to SERVICE DUE.

   Note: If service is currently due, NOW appears next to SERVICE DUE.
5. Highlight the service interval and press the select button.

   Note: The service interval (250 Hrs, 500 Hrs, etc) is located next to SERVICE DUE. Service interval is a protected menu item.
6. When the RESET SERVICE TIMER? screen appears, press the select button for YES or the back button for NO.
7. After you select YES, the interval screen clears and reverts back to the service hours selections.

Setting the Auto Idle

1. In the Settings Menu, scroll down to Auto Idle.
2. Press the inner right or left button to change the auto idle time between OFF, 8S, 10S, 15S, 20S, and 30S.

Setting the Maximum Allowed Mow Speed

- In the Settings Menu, Scroll down to Mow Speed and press the right button.
- Use the inner right button to increase the maximum full mow speed (50%, 75%, or 100%).
- Use the inner left button to decrease the maximum full mow speed (50%, 75%, or 100%).
- Press the left button to exit.

Setting the Maximum Allowed Transport Speed

- In the Settings Menu, scroll down to Transport Speed and press the right button.
- Use the inner right button to increase the maximum transport speed (50%, 75%, or 100%).
- Use the inner left button to decrease the maximum transport speed (50%, 75%, or 100%).
- Press the left button to exit.

When finished with the Protected Menu, press the left button to exit to the Main Menu, then press the left button to exit to the Run Menu.

Turning the Smart Power ON/OFF

1. In SETTINGS, scroll down to SMART POWER.
2. Press the right navigation button to switch between ON and OFF.

Understanding the Diagnostic Light

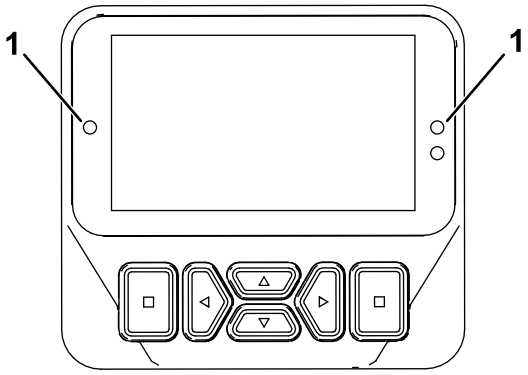

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Figure 4

1. Diagnostic light

- Flashing red—active fault
- Solid red—active advisory
- Solid green—normal operation
- Blinking green—updating code

Audible Alarm from the InfoCenter

The alarm sounds during the following scenarios:

Lowering the deck

- The engine is not running
- Any deck is being lowered

Deck is out of float

- The PTO is requested and qualified
- Any deck is below the limit, but not floating

Machine sends a request to the InfoCenter

- The engine sends a red, stop lamp message

  Note: If the alarm stops or if the operator acknowledges the alarm by pressing any button on the InfoCenter, then the alarm should stop.
- Regeneration requested by the engine
- Any engine fault
- Any advisory; refer to InfoCenter Advisories (page 8)
- The engine sends an amber warning message
- The fuel level is below 2.2%

InfoCenter Advisories

Operator advisories automatically display on the InfoCenter screen when a machine function requires additional action. For example, if you attempt to start the engine while pressing the traction pedal, an advisory displays, indicating that the traction pedal must be in the NEUTRAL position.

For each advisory that occurs, there is a **condition** (e.g., start denied, PTO denied, cruise control denied), an advisory **code** (number), a **qualifier** (the cause of the advisory displayed), and a **display text** (what the advisory displays as text on the screen).

Note: Advisories do not log into the fault log.

Note: You can clear an advisory from the display screen by pressing any of the InfoCenter keys.

Refer to the following table for all the InfoCenter advisories:

Condition	Code	Qualifier	Display Text
Start Denied	1	Cause unknown	N/a
Start Denied	4	Teach engaged	N/A
Start Denied	5	PTO engaged	To start, disengage PTO
Start Denied	6	Not in NEUTRAL	To start, move traction pedal to NEUTRAL
Start Denied	7	Neither in seat nor parking brake applied	To start, must be seated or set parking brake
Start Denied	8	Deck switch engaged	To start, disengage deck switch
Start Denied	9	Recycle power	To start, turn key switch off, then on
PTO Denied	101	Cause unknown	N/A
PTO Denied	102	In high range (only cut in low)	To engage PTO, must be in low range
PTO Denied	106	Out of seat	To engage PTO, operator must be seated
PTO Denied	107	No decks floating (hit a down key)	To engage PTO, lower decks
PTO Denied	108	Engine hot	To engage PTO, let engine cool
PTO Denied	109	Loss of CAN bus (service required)	To engage PTO, requires service
Cruise Control Denied	202	Too slow to capture cruise control	Increase ground speed
Deck Lower Denied	302	Can't lower in transport	To lower deck, return traction pedal to NEUTRAL
Deck Lower Denied	303	Out of seat	To lower deck, operator must be seated
Deck Lower Denied	304	Service required	To lower deck, requires service
Deck Not Floating (on engine start)	402	Advise operator to press down switches	To float, lower decks
Range Hi Denied	502	Left deck not up	To set high range, lift left deck
Range Hi Denied	503	Center deck not up	To set high range, lift center deck
Range Hi Denied	504	Right deck not up	To set high range, lift right deck
Range Hi Denied	505	Left deck floating	To set high range, lift left deck fully
Range Hi Denied	506	Center deck floating	To set high range, lift center deck fully

Range Hi Denied	507	Right deck floating	To set high range, lift right deck fully
Range Hi Denied	508	PTO switch engaged	To set high range, disengage PTO
Range Hi Denied	509	Cruise engaged	To set high range, disengage cruise
Range Hi Denied	510	Speed too high	To set high range, reduce ground speed
Range Hi Denied	511	Loss of CAN bus (service required)	To set high range, requires service
Range Hi Denied	512	Hydraulic fluid too cold	To set high range, let hydraulic fluid warm up
Range Lo Denied	602	Cruise control engaged	To set low range, disengage cruise
Range Lo Denied	603	Speed too high	To set low range, reduce ground speed
Range Lo Denied	604	Loss of CAN bus (service required)	To set low range, requires service
Traction Disabled	804	Parking brake ON	For traction, release parking brake
Traction Disabled	805	Not in NEUTRAL	For traction, move traction pedal to NEUTRAL
Traction Disabled	806	Out of seat	For traction, operator must be seated
Engine Advisory	1205	Starter has been active for 30 seconds	Engine 30 second starter time out
Engine Advisory	1206	Replace engine air filter	Check the air filter
Engine Advisory	1207	Service due	Engine service due approaching
Engine Advisory	1208	Service past due	Engine service past due
Engine Advisory	1209	DPF service required	Regeneration required within 30 minutes
Engine Advisory	1210	Engine derate due to high temperature	Let engine cool
Engine Advisory	1211	Engine speed restricted: hydraulic fluid too cold	Hydraulic fluid is less than 4°C (40°F), so derate the engine speed to 1,650 rpm
Fuel Level	1302	Fuel level is low	Add fuel
TP Not Calibrated	1402	Traction pedal is out of calibration	Calibrate the traction pedal
Teach	1502	Traction pedal is out of NEUTRAL	Return traction pedal to NEUTRAL
Teach	1503	Slowly move the traction pedal forward	Slowly move the traction pedal forward
Teach	1504	Neutral forward capture passed	Neutral forward capture passed
Teach	1505	Neutral forward capture failed—too fast	Neutral forward capture failed—movement too fast; try again
Teach	1506	Neutral forward capture failed (out of range)—voltage captured was out of specification	Restart teach mode

Teach	1507	Move traction pedal to MAX FORWARD and hold	Move traction pedal to MAX FORWARD and hold
Teach	1508	Max forward capture passed	Max forward capture passed
Teach	1509	Max forward capture failed (out of range)—voltage captured was out of specification	Restart teach mode
Teach	1510	Slowly move the traction pedal in REVERSE	Slowly move the traction pedal in REVERSE
Teach	1511	Neutral rev capture passed	Neutral rev capture passed
Teach	1512	Neutral rev capture failed—too fast	Neutral rev capture failed—movement too fast; try again
Teach	1513	Neutral rev capture failed (out of range)—voltage captured was out of specification	Restart teach mode
Teach	1514	Move traction pedal to MAX REVERSE and hold	Move traction pedal to MAX REVERSE and hold
Teach	1515	Max reverse capture passed	Max reverse capture passed
Teach	1516	Max reverse capture failed (out of range)—voltage captured was out of specification	Restart teach mode
Teach	1517	TP teach done/values stored	Exit teach
Teach	1518	TP teach was unsuccessful	Exit teach and try again
Deck Raise Denied	1601	Unknown cause (software issue)	N/A
Deck Raise Denied	1602	Out of seat	Operator must be seated
Deck Raise Denied	1603	Parking brake not set	Set parking brake
Deck Raise Denied	1604	Not in NEUTRAL	Return traction pedal to NEUTRAL
Deck Raise Denied	1605	Service required	Contract your Toro distributor
Deck Raise Denied	1606	All decks not raising together	Increase the engine speed to 2,000 rpm, and the decks will raise one at a time when all 3 switches are held down simultaneously

Notes:



Count on it.